

CLAIMS

[1] An electrophotographic developing roller having a cylindrical metal base body and a metal flange as press fitted in an opening end section of said cylindrical metal base body, the developing roller being characterized in that said metal flange has a larger diameter section for fitting in the opening end inner surface of said cylindrical metal base body and a smaller diameter section serving as a central shaft body coaxial with said cylindrical metal base body; and that the fit section surface of said larger diameter section before being press fitted has an uneven shape such that a maximum roughness R_y due to a circumferential groove formed by cutting processing is from 25 μm to 70 μm .

[2] An electrophotographic developing roller having a cylindrical metal base body and a metal flange as press fitted in an opening end section of said cylindrical metal base body, the developing roller being characterized in that said metal flange has a larger diameter section for fitting in the opening end inner surface of said cylindrical metal base body and a smaller diameter section serving as a central shaft body coaxial with said cylindrical metal base body; and that the fit section surface of the opening end section inner surface of said cylindrical metal base body before being press fitted has an uneven shape such that a maximum roughness R_y due to a

circumferential groove formed by cutting processing is from 25 μm to 70 μm .

[3] The electrophotographic developing roller according to claim 1 or 2, characterized in that an adhesive is used in said fit section.

[4] The electrophotographic developing roller according to claim 3, characterized in that said adhesive is an anaerobic adhesive.

[5] The electrophotographic developing roller according to any one of claims 1 to 4, characterized in that a countersunk section is provided on the opening end section inner surface of said cylindrical metal base body.

[6] The electrophotographic developing roller according to any one of claims 1 to 5, characterized in that the thickness of said cylindrical metal base body is from 0.75 mm to 2 mm; and that the interference at the time of press fitting is from 10 μm to 60 μm .

[7] The electrophotographic developing roller according to any one of claims 1 to 6, characterized in that said cylindrical metal base body and said metal flange are each made of steel or an aluminum based alloy as the principal material.

[8] The electrophotographic developing roller according to any one of claims 1 to 6, characterized in that said cylindrical metal base body is made of a carbon steel tube containing not

more than 0.25% by weight of carbon, not more than 0.30% by weight of silicon and not more than 0.85% by weight of manganese.

[9] An electrophotographic developing roller having at least a cylindrical metal base body, which comes into contact with or becomes adjacent to a photoreceptor, thereby feeding a developer on the surface of said photoreceptor and developing an electrostatic latent image formed on said photoreceptor, the developing roller being characterized in that said cylindrical metal base body is made of a carbon steel tube containing not more than 0.25% by weight of carbon, not more than 0.30% by weight of silicon and not more than 0.85% by weight of manganese, respectively.

[10] The electrophotographic developing roller according to any one of claims 1 to 6, characterized in that said cylindrical metal base body is made of an STKM11A carbon steel tube (JIS G3445).

[11] An electrophotographic developing roller having at least a cylindrical metal base body, which comes into contact with or becomes adjacent to a photoreceptor, thereby feeding a developer on the surface of said photoreceptor and developing an electrostatic latent image formed on said photoreceptor, the developing roller being characterized in that said cylindrical metal base body is made of an STKM11A carbon steel tube (JIS G3445).

[12] The electrophotographic developing roller according to any one of claims 1 to 11, characterized in that said cylindrical metal base body is an electro-resistance-welded tube.

[13] The electrophotographic developing roller according to any one of claims 1 to 12, characterized in that said cylindrical metal base body is subjected to cutting processing or polishing processing.

[14] The electrophotographic developing roller according to any one of claims 1 to 13, characterized in that the outer surface of said cylindrical metal base body is subjected to a blast treatment.

[15] The electrophotographic developing roller according to any one of claims 1 to 13, characterized in that the outer surface of said cylindrical metal base body is subjected to metal plating.

[16] The electrophotographic developing roller according to claim 14, characterized in that the outer surface of said cylindrical metal base body having been subjected to a blast treatment is further subjected to metal plating.

[17] The electrophotographic developing roller according to claim 15 or 16, characterized in that said metal plating is electroless nickel plating.

[18] The electrophotographic developing roller according to any one of claims 15 to 17, characterized in that the outer

surface of said cylindrical metal base body having been subjected to metal plating is further subjected to a chromate treatment.

[19] The electrophotographic developing roller according to any one of claims 15 to 18, characterized in that said metal plating is achieved without performing a zinc alloy film formation treatment in advance.

[20] The electrophotographic developing roller according to any one of claims 1 to 19, characterized in that said cylindrical metal base body has a straightness of not more than 15 μm .

[21] The electrophotographic developing roller according to any one of claims 1 to 20, characterized in that said cylindrical metal base body has a deflection accuracy of not more than 20 μm .

[22] The electrophotographic developing roller according to any one of claims 1 to 21, characterized in that said electrophotographic developing roller is used in an electrophotographic device of a non-magnetic one-component non-contact development system.

[23] The electrophotographic developing roller according to any one of claims 1 to 22, characterized in that said electrophotographic developing roller is used in a color electrophotographic device.

[24] An image forming device, characterized by being mounted with the electrophotographic developing roller according to any one of claims 1 to 23.